REMARKS

Reconsideration and allowance of the subject application are respectfully requested.

Applicant also appreciates the Examiner's acknowledgement of the claim for foreign priority and the indication that the certified copy of the priority document has been received. Applicant also appreciates the Examiner's approval of the formal drawings submitted on April 25, 2001. Although the Examiner indicates that the PTO-1449 form is an attachment to the Office Action, Applicants did not receive such an attachment and respectfully request the Examiner provide an initialed PTO-1449 form from the May 29, 2001 Information Disclosure Statement.

The Examiner objects to the Abstract. Suitable amendments have been made to the Abstract to overcome the Examiner's objection.

Applicant notes with appreciation the Examiner's indication of allowable subject matter in claims 4, 6, 7 and 13. Claim 4 has been rewritten in independent claim format and should now be allowed. For the reasons set forth below, Applicant respectfully submits that all pending claims should be allowed.

Claims 1, 3, 5, 8-9, 14 and 16 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent 4,839,889 to Goeckler. This rejection is respectfully traversed.

To establish that a claim is anticipated, the Examiner must point out where each and every limitation in the claim is found in a single prior art reference. *Scripps Clinic &*

Research Found. v. Genentec, Inc., 927 F.2d 1565 (Fed. Cir. 1991). Every limitation contained in the claims must be present in the reference, and if even one limitation is missing from the reference, then it does not anticipate the claim. *Kloster Speedsteel AB v. Crucible, Inc.*, 793 F.2d 1565 (Fed. Cir. 1986). Goeckler fails to satisfy this rigorous standard.

Goeckler describes a switchable dividing network that includes individual filters whose center frequencies are selected from the group including f/8, 3f/8, 5f/8, and 7f/8. The passband of this switchable dividing network is allegedly "shiftable to other frequency ranges by changing signs of a few coupling devices." See the Abstract of Goeckler. The Examiner alleges that each of plural frequency splitting stages is illustrated in Figure 8 and includes one or more up-converter and down-converter pairs, making reference to column 4, lines 56-68. Applicant disagrees. According to column 7, lines 20-23 in Goeckler, the blocks that perform the frequency splitting shown in Figure 8 at each stage are the same as the digital filter bank shown in Figure 1 and described at column 4, line 56 to column 5, line 7. Applicant respectfully submits that these blocks are not up-converters or down-converters.

A more detailed illustration of the digital filter bank shown in Figure 1 is provided in Figures 3 and 4A-4H with corresponding description provided in column 5, line 8 to column 6, line 6. Here, Goeckler discloses how the digital filter bank applies a number of FIR filters to the input signal in order to create a number of output signals containing different frequency bands. See, for example, Figure 4F. But this is not how an up-

converter or a down-converter functions. A down-converter, for example, converts an input signal whose frequencies of interest range from f_{min} to f_{max} to a signal where the frequencies of interest are in a lower frequency band and are usually centered around zero. In the non-limiting, example illustration provided in the present application, as shown in Figure 2 and described on page 6, a down-converter converts a frequency band from zero to $+F_s/2$ to a frequency band $-F_s/4$ to $+F_s/4$. Figure 2 also gives a non-limiting example of a up-converter converting a frequency band from $-F_s/2$ to zero to a frequency band from $-F_s/4$ to $+F_s/4$. In contrast, the frequency band that Goeckler isolates in Figure 4F is the same frequency band as that of the input signal.

Accordingly, Goeckler does not disclose using up-converters and/or down-converters to perform frequency splitting. Goeckler also fails to appreciate the advantages of performing frequency splitting using up-converters and/or down-converters. For example, the present invention permits the use of all low pass filters of virtually identical design which is greatly simplified as compared to multistage frequency separating circuits that employ successive stages of low pass and high pass filters. This advantage leads to further simplification via massive interleaving of different data streams through a common interleaving filter. Still further, all output data for each frequency "bin" is based on a zero-centered frequency (similar to the fast Fourier transform output) rather then an offset frequency, which is typically the case for multistage frequency separating circuits. In addition, Goeckler's filter bank plus discrete

Fourier transform structure can not be used to directly provide frequency shifting as can the claimed up-converters and down-converters.

Lacking features required by the independent claims, the anticipation rejection based upon Goeckler is improper and should be withdrawn.

Claims 10-12 stand rejected under 35 U.S.C. §103 as being unpatentable over Goeckler. Claim 15 stands rejected under 35 U.S.C. §103 as being unpatentable over Goeckler, in view of U.S. Patent 5,864,800 to Imai. Neither of these rejections remedies the deficiencies of Goeckler with respect to the independent claims. Therefore, the specifics of these rejections need not be addressed.

The application is in condition for allowance. An early notice to that effect is earnestly solicited.

Respectfully submitted,

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